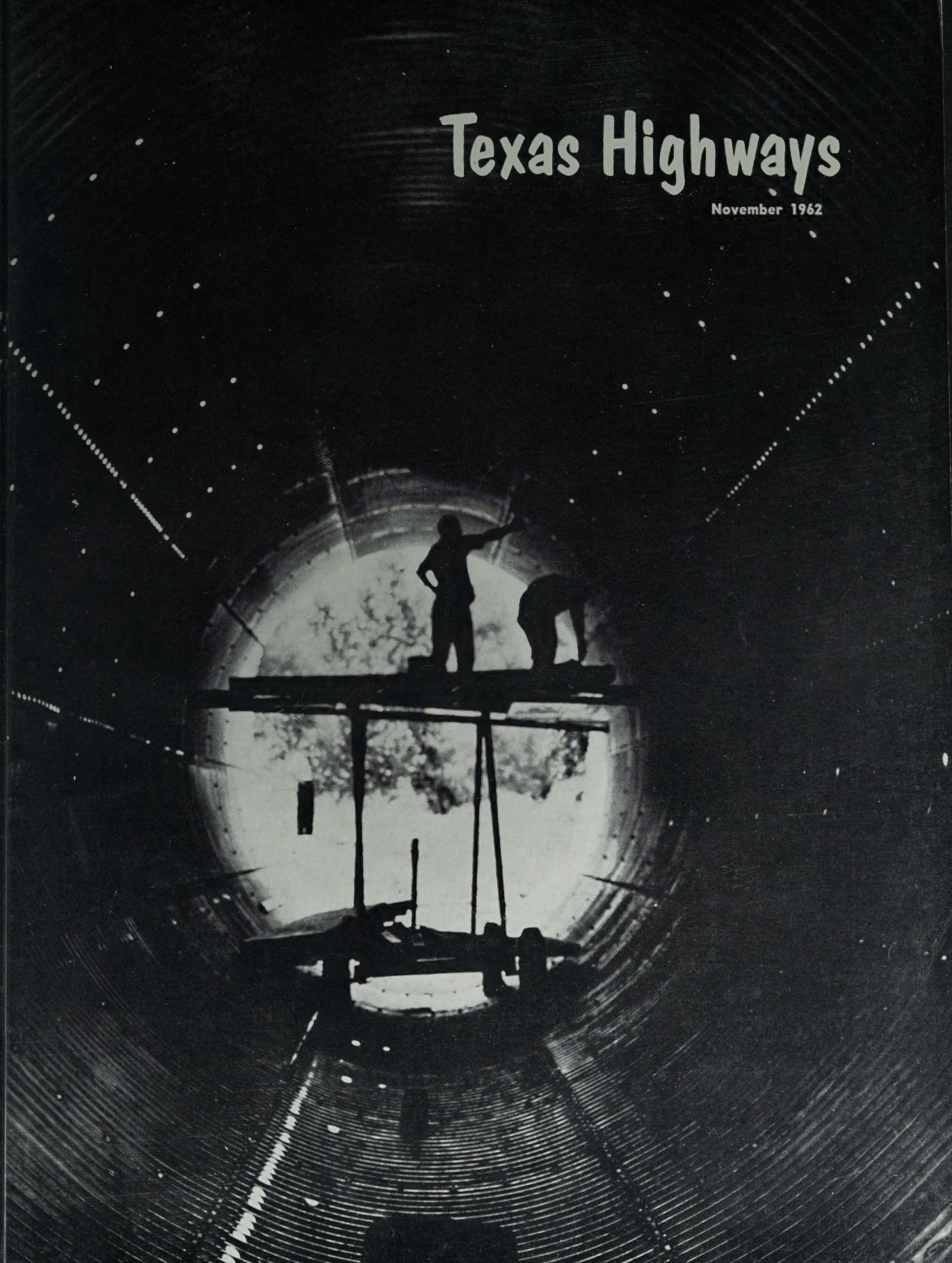
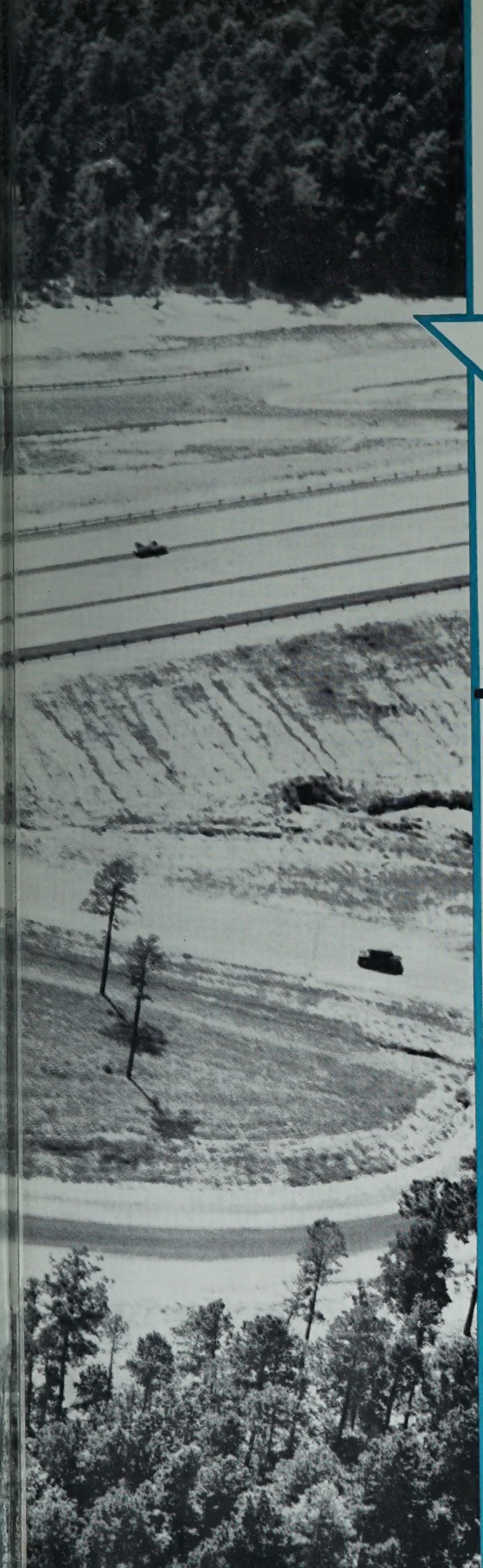
Texas Highways

November 1962





Texas Highways

Volume 9 • Number 11

November 1962

Contents

Editorial	2
Carla Revisited	3
New District Engineer	9
Putting an "End" to Metal Beam Guard Rail	10
Our Man in Lisbon	12
Multi-Plate Pipe	16
In the Public Eye	19
Of Signs and Things	21
Over the Highways	23
To and From Our Readers	24

About Our Cover

The largest multi-plate pipe ever built in District 14 southeast of Bastrop offers an interesting subject for our November cover. Workers are busy lining up holes in the plate and bolting them together in this ring compression theory of pipe installation.

Inside Front

Interstate Highway 45 interchanges with Park Road 40 in the Huntsville State Park in Walker County, displaying the clean simple lines of the best in modern highway design. Recently another section of IH 45 not far from this interchange was named one of the most scenic in America.

We overheard two men talking recently about the moral decline of Americans—a subject that seems to be getting a lot of publicity these days.

"People just don't have scruples anymore," one of them remarked. "They just don't seem to know what scruples are."

"Yes," the other man agreed, "whenever people return to scruples, we will be a lot better off."

No doubt they were talking about moral and ethical values and personal integrity. We noticed the men employed the pronoun "they" as if everybody lacked scruples except themselves. We wonder. Too often we tend to say "they" when we speak of people who are no less guilty than ourselves when it comes to a lack of ethics or integrity in a given situation.

Albert H. Pollard touched on this same theme in his letter of resignation to State Highway Engineer D. C. Greer this month. (See page 24) Pollard, who was Supervising Field Engineer for Materials and Tests Division in Austin, spoke of the integrity, challenge, and opportunity afforded him by the Department. It started us thinking about the Department and the confidence it inspires in the public.

Mr. Pollard's words are especially significant in view of recent events in our state. We think portions of his letter bear repeating during a holiday season when most minds are filled with thoughts of the brotherhood of man and with planning new resolutions for the coming year.

"Several years ago," Pollard wrote, "John C. Smith, a District 12 Engineer, had an article in 'Texas Highways' (May 1958) that I felt was inspiring enough that I asked several new employees to read it, so that they might feel a little more 'like one of our family.' He mentioned Security and Challenge among other basic components, but the most important of the various factors, in my opinion, was Integrity. He pointed out that the Texas Highway Department utilized these basic components as a career yardstick, and I feel that the main reason for such success as has been achieved has been due greatly to the fact that the Highway Department has kept Integrity constantly in mind. Impartial and fair decisions are prerequisites toward earning and maintaining universal respect among fabricators, material suppliers, contractors, fellow engineers, and the general public. Without integrity, one can not take pride or have satisfaction in his work, but with it, confidence and success can follow.

"In my contacts, both within and outside our State, it has been a source of immeasurable pride, to be able to point out that during the entire period of my connection with the Department, it has been free from political pressures and scandals."

Speaking before civic leaders in Kilgore this month, State Highway Engineer D. C. Greer said honesty and integrity cannot be legislated. He pointed to the decentralized system of the Department, with the delegation of responsibility and authority at the District and local levels, as one of the most important reasons for the success of the Department over the years.

He said local engineers and other Department personnel within every community of the state are known and respected in their towns. These men, he said, are not "out of town experts," but citizens who reside in and are part of the communities where they work. "They build and maintain Texas highways with the pride with which only Texans can," he said.

We can take pride and heart in being associated with this organization. Perhaps people still have more "scruples" than some prognosticators of gloom would have us believe.

Carla Revisited

Hurricane Carla swept away almost half the road bed on the Carancahua Bay bridge.

Already a new bridge stands in its place, built at a cost of $668,039.

Hurricane Carla cast her evil eye on Texas and roared across the Gulf waters. She smashed the coast with a mighty blow and her 12-foot-tall waves and 150-mile-an-hour gales swept up everything in her path and crashed it all down again in turbulent splinters of terror, anguish, snakes, financial loss, destruction, oblivion, floods, winds, floating houses, broken glass and crumpled highways.

That was September 10, 1961 . . . hardly more than a year ago. Amid the nightmare of confusion and danger there persisted a single courageous, organized effort against the hurricane forces. It was the Texas Highway Department men working around the clock to keep the highways open. The storm drove half a million people inland. It was the greatest mass exodus from a natural disaster in the United States, and it was an unqualified success as those 500,000 people used Texas highways as avenues to safety.

Today the highways are reconstructed and the homes resettled. This report from the district offices on the coast shows just how swiftly the Texas Highway Department erased the scars of Hurricane Carla.

Seven of the slabs on the Lavaca Bay Causeway were displaced from three to six feet during the storm. But once again the causeway is a continuous bay crossing. Several of the 150-ton slabes were jacked back into place, but others had to be rebuilt.

And The Oleanders Are Blooming Again

Earl F. Wyatt, Supervising Maintenance Engineer
District 13

On the morning after Hurricane Carla struck, a hurried inspection was made of the Port Lavaca area. Maintenance forces were busy clearing wreckage, boats, dead animals, snakes, and other debris from highways. National Guard troops moved in to prevent looting, and, in a more or less vain attempt, to keep sight-seers out of the way.

On the new Lavaca Bay Causeway all traffic was being carried on the two north lanes because several spans of the south lanes had been damaged.

It was two days later before we could make detailed inspections from boats and from the bridge of damage to the new causeway. We were assisted by engineers from the Maintenance and Bridge Divisions in making the inspections.

On September 14 we discovered that some of the neoprene bearing pads under the girders had been dislodged by the storm tides, and we immediately closed the usable north half of the bridge to all truck traffic. The next day pads were ordered from a supplier in Houston who had the original moulds. The supplier was able to mould and cure the pads and have them back on the job within 24 hours. Installation was made by maintenance forces and completed by noon Sunday, September 17, and truck traffic was allowed once again to travel the north lanes.

The causeway builder still had part of his equipment at Port Lavaca and by September 21 we had made an agreement for repairs. Repair work was begun in October and was completed in February at a cost of $130,823.

Approaches to the causeway were well under construction at the time of the hurricane. Damage to the fills was held to a minimum by riprap on the slopes. Approach repairs and additional costs due to handling traffic through construction areas amounted to $98,149.

More than half of the 2,341-foot Carancahua Bay Bridge was destroyed by the hurricane. Plans for its routine replacement were finished partially already, so plan work was rushed to completion and submitted to Austin on September 16, 1961. We secured additional right of way and the project was let for contract on October 11.

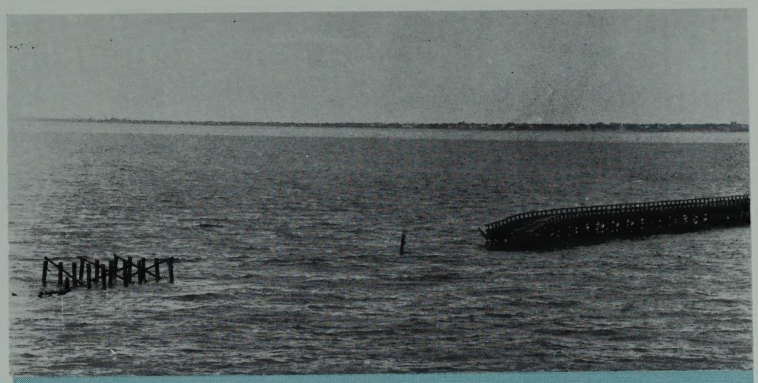
The contractor began work in November. After several delays due to low tides and bad weather, the project was completed in July at a cost of $668,039.

Only timber piling were left standing of a seven-span timber bridge on State Highway 316 near Indianola. Since it was not practical to detour the structure, we decided to rebuild it with maintenance forces. We salvaged all the timber caps and stringers we could find and began work on September 13. The concrete deck was completed and opened to traffic on October 2. Rebuilding the bridge cost about $7,000.

The beachside park at Indianola was a shambles after Carla passed. It was impossible to locate five of the six arbored picnic units. All units and fixtures were damaged severely and the loop road pavement was buried under several feet of shell in places and washed out in other sections. A lonely looking horse and a Brahman cow wandered aimlessly through the debris.

The units that were destroyed completely have been replaced with modern arbor units and the other rebuilt. The road has been restored, and the oleanders are blooming again. Cost for this rehabilitation was $14,248.

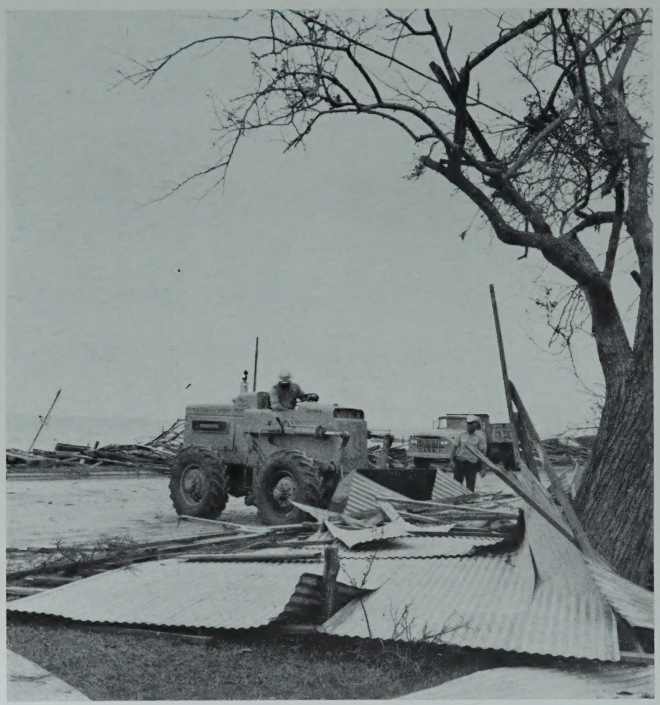
Traffic facilities were mostly restored within a few days, with the exception of the Carancahua Bay Causeway.



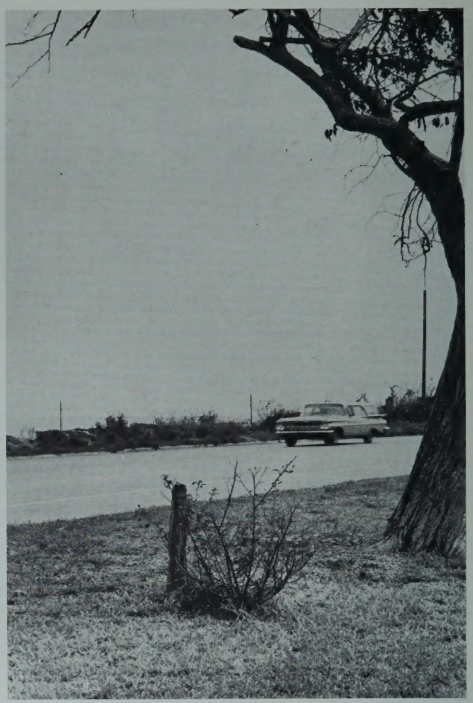
The old Lavaca Bay Causeway, which might have become one of the longest fishing piers in the world, was washed away, with only a few sections left intact. The waves slowly keep washing away portions of the structure.

REHABILITATION COST SUMMARY

Channel Cleaning—Old Lavaca Bay Bascule Span	$ 900
Lavaca Bay Causeway Repairs	130,923
Lavaca Bay Causeway Approaches	98,149
"No Name" Bridge, State Highway 316	7,000
Carancahua Bay Causeway	668,039
Repairs at Indianola Roadside Park	14,248
Base & Surface Replacement on FM 616, Jackson County	12,709
Rebuilding Equipment Sheds at Edna	6,769
Repairs Lavaca River Bridge, FM 616	2,008
Repairs Kellers Creek Bridge, FM 616	1,628
Erosion Control, FM 404	1,756
General Repairs and Cleanup	61,540
Total	$1,005,673



Maintenance men push what is left of a corrugated iron barn off of S.H. 238 in downtown Port Lavaca.



Today traffic flows unimpeded, unmindful that sheets of iron and piles of driftwood once littered the highway.

This ferry was swept over a twelve-foot wall and onto State Highway 35 in Port Lavaca.

Here is a scene of the same street, cleared of the ferry and other debris left scattered by the storm.

Today you'd never know it happened. "Juggling" and reconstruction smoothed the crooked causeway back to normal.

Huge 150-ton slabs on the new Lavaca Bay causeway were shoved out of place by the high tides of Hurricane Carla.

Cars on S.H. 35 on the Guadalupe River just north of Tivoli made their way through the tops of trees downed by the force of Carla.

Two way traffic flowed again soon after the storm, as maintenance crews cleared away the fallen trees.

State Highway 361 between Aransas Pass and Port Aransas was hard hit.

Here is an up-to-date picture of S.H. 361, northwest of Harbor Island, showing how the highway has been reconstructed.

Washed Out Highway

T. O. Foster Jr., District Engineer
District 16

The total cost of repair work done by our own forces after Hurricane Carla's wrath amounted to approximately $41,000.

State Highway 361 between Aransas Pass and Port Aransas was the hardest hit. Long sections were washed away completely.

Cost of reconstructing the highway was about $850,000, which included approximately $62,000 in engineering expenditures.

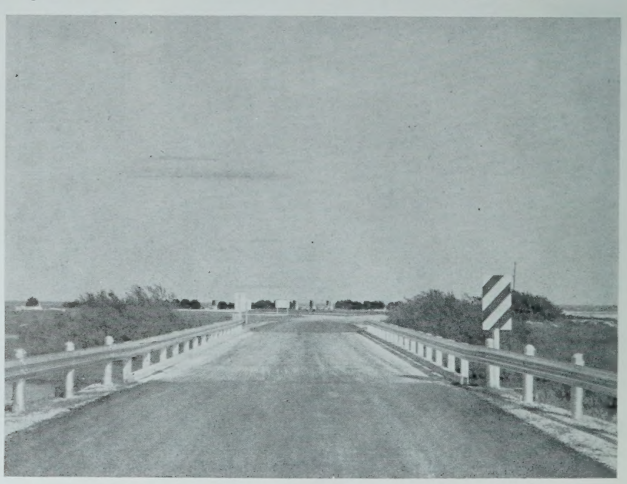
The highway was closed to traffic for two days after the hurricane struck while repairs were made. Although none of the structures had been damaged, many sections were washed away, including base, surface and hydraulic fill. After repairs, traffic was routed over the repaired section and a portion of the old Nueces County road.

Reconstruction of State Highway 361 was completed this October. It included the addition of a 1,500-foot structure in the area where the roadway was destroyed completely. The slopes of the rebuilt section also were stabilized with cement to protect them from future erosion.

State Highway 361 was the only highway which was closed during the hurricane, except for those closed to high water during the storm. Damage done to several other highways was not severe.

The storm reduced this bridge on S.H. 361 to stepping stones.

The new bridge is an example of how the Texas Highway Department has erased the scars of Hurricane Carla.



New District Engineer

The appointment of Robert W. Crook as District Engineer of the Fort Worth District has been announced by State Highway Engineer D. C. Greer.

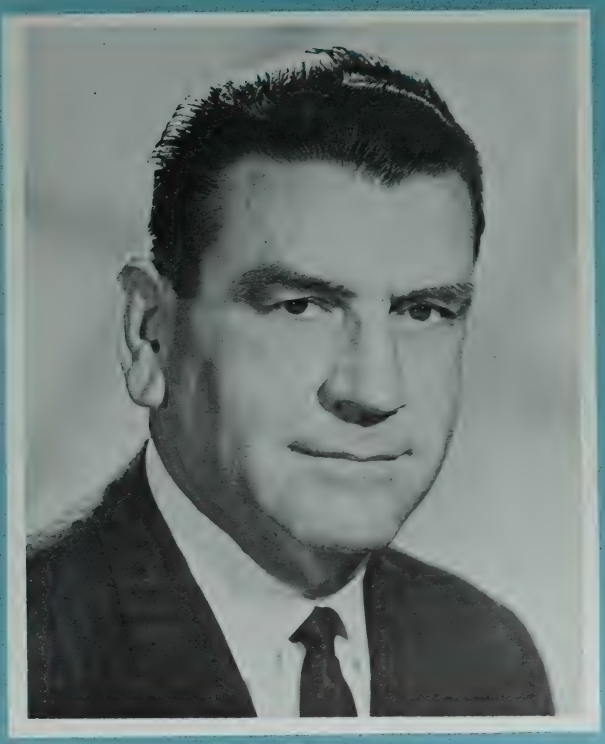
Crook replaces R. A. Bossy, who died on October 20. Said Greer, "We have suffered a severe loss in the death of our friend and co-worker, Reg Bossy. Mr. Bossy had served the Texas Highway Department faithfully and efficiently for more than 35 years." For the past seven and a half years he had been District Engineer at Fort Worth. He served as freeway engineer-manager for six months prior to his promotion.

Bossy's successor has served in almost every engineering capacity during his 24 years of Departmental service. Starting as a Laborer, Crook worked his way up to District Designing Engineer in 1957 and Assistant District Engineer in 1961.

Forty-six years old, Crook was born at Granbury, Texas, where he received his preliminary schooling. In 1940 he graduated from Texas A & M College with a degree in civil engineering.

During World War II, the newly appointed District Engineer served with the Army in the Corps of Engineers. Among his numerous military decorations, Crook counts the Philippian Liberation Ribbon with one bronze star; a Good Conduct Medal; four overseas service bars; and the Asiatic-Pacific Campaign Medal with three bronze stars.

An avid fishing and bowling enthusiast (and an "ex-golfer"), Crook is also active in the Texas Society of Professional Engineers and the Broadway Baptist Church. For the past four years he has been working with the Boy Scouts.



Robert W. Crook

Reginald A. Bossy

Putting an "END" to Metal Beam Guard Rail

To reduce the danger of vehicles colliding with the end of a metal beam guard rail, Texas Highway Department design engineers have literally added a twist and buried the end of the rail.

At the proving grounds of one large automobile manufacturing company, engineers concluded that standard end installation of guard rail is a roadside obstacle, and in some cases it may be a greater hazard than the obstacle it is supposed to protect against.

It is usually fatal to someone in the car when the guard rail is hit on the end by a fast-moving car. So design engineers decided to bury the end of the rail in the ground and anchor it to a concrete post which would provide full ribbon strength at the end of the rail. This is a new development in highway safety.

Engineers in District 11 at Lufkin have incorporated the new design in construction plans for Loop 224 in Nacogdoches County. But first, to get some idea of its construction and to familiarize contractors in the area with the new design, District 11 personnel built two guard rails on U. S. Highway 59 over Laurellia Creek two miles south of Corrigan.

Printes Chandler, Senior Maintenance Foreman in Livingston—with the aid of the District shop and lab

« *This is what can happen when a car collides at high speed with the end of a guard rail. This kind of accident is often fatal but with the new buried-end method the danger may be eliminated.*

A new safety design feature—burying the end of metal beam guard rail—has been employed for the first time in Texas on U. S. Highway 59 in Polk County. The end of the rail is anchored to a 6-foot concrete post sunk in the ground. »

drill rig—found fabrication of materials and installation of the rails relatively simple.

J. N. Dominey, District Maintenance Engineer, describes the operation:

To install the rail the two joints of flex beam were attached loosely to the end of the bridge rail. With the beam in a swinging position, the hole for the concrete anchor was staked. The drill rig was then moved into position and an 18-inch by 6-foot deep hole was drilled. The rail was easily moved to one side for the drilling operation.

The fabricated anchor post was then placed in the hole and allowed to rest on two 2 by 6 boards that were placed on edge across the hole. Flex beam was then aligned with the anchor, holes burned, and bolts attached. No problem was encountered in twisting the beam. The weight of the beam will almost bend itself half way. One man pressing with his foot can bend it into position.

After the rail was attached to the anchor with bolts and all nuts tightened, the anchor post was allowed to swing in the hole supported near the hole edge with a 2 by 6 lying flat. Concrete was then poured around the anchor.

Spacing from the end of the rail to the next post was 12 feet 6 inches. The inside post was set by removing the rail and setting the post to grade. The center posts were cut from salvaged high-line poles with 45-degree bevel. After the post was placed, holes were drilled through both flex rail and post and a notch was cut perpendicular to the bolt on the back side of the post. A flat washer was used rather than the beveled or pipe section. The "elephant ears" were then bolted into place.

A number of Districts have shown an interest in the new safety design and at least three of them have put the "buried end" guard rails into future plans.

Guard rails remain parallel to the roadside but the last twelve and a half feet are twisted slightly and anchored at ground level to provide full ribbon strength at the end.

If this artistic bridgework somehow seems familiar, perhaps it reminds you of the Eiffel Tower in Paris. Eiffel built the two-level trussed arch bridge about the turn of the century. The bridge is in Porto over the Douro River.

Our Man in Lisbon

You often hear talk about establishing an international language for people, but an international language for machines is a new concept.

Such a language is only one of the modern aspects in the use of the computers in civil enginering. Computers were surveyed thoroughly at the NATO Advanced Study Institute in Lisbon, Portugal, from September 16 to October 7.

Ronald Hudson, Senior Designing Engineer, was one of five engineers invited from the United States. Hudson came back to Austin with a new international understanding to report to his associates in the Highway Design Division . . . plus an account of adventures abroad.

"The technical information we learned at the institute will be very helpful to us in our research work," Hudson began, "But equally important was the opportunity to meet and deal with civil engineers from twelve other countries.

"It was interesting to see the varying approaches taken by the different countries to solve the same problems. And I also was impressed by Portugal. It is a much more progressive country than most of us realize."

The conference was sponsored by the Scientific Committee of the North Atlantic Treaty Organization and by the Laboratorio Nacional de Engenharia (LNEC), the national testing

and research agency of Portugal. Hudson's participation in the conference was co-sponsored by the National Science Foundation.

Thirty engineers from 13 NATO countries, and 20 part-time participants from Portugal, attended the institute. Although they were free to travel and go sight-seeing on the weekends, during the week they were kept busy in a concentrated program designed to broaden their horizons.

"In the first two-week period we attended 34 one and one-half hour lectures . . . there were four lectures each day," said Hudson. "And during the final week we heard 70 papers from 25 countries, including Russia, in the international symposium."

Leadership for the conference was provided by six lecturers representing the University of Columbia, New York City; the University of California; the University of Liege, Belgium; and the LNEC of Portugal.

"We spent a good deal of time discussing an international language for computers called ALGOL," said Hudson. "It also is an international mathematical language.

"The development of such a language is desirable because with proper use, it would not only be possible to exchange mathematical equations and solutions easily," he explained, "but it also would be possible to exchange computer programs which could be used directly on all computers . . . providing the universal language were accepted by all countries."

ALGOL is similar to FORTRAN, but is more general in nature. FORTRAN is IBM's simplified programming language.

Encircled by a group of student engineers after a lecture, a professor from the University of Rome discusses convergence. Hudson stands to the right of the professor.

Hudson said an international committee was formed to study the importance of an international computer language and to make recommendations toward the establishment of it.

"The lectures were about many different subjects," Hudson continued.

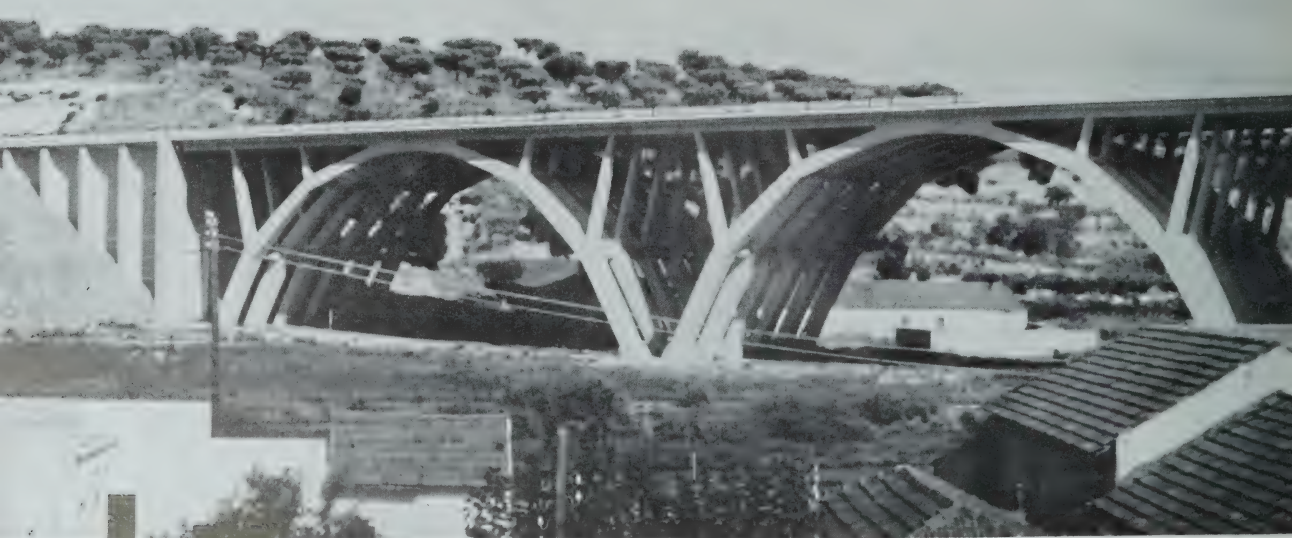
"One series was on mathematical methods used in civil engineering, such as simultaneous equations, complex algebraic equations, matrix algebra and numerical methods," he said.

"We studied various computers on the market and their differences and similarities, their strong points, their limitations, and their adaptation to civil engineering.

"We also discussed advanced computer techniques well adapted for

The head of LNEC Structural Section discusses model tests on T beams during a tour of the laboratory. That's Hudson at the center back, wearing a white shirt with camera draped around his neck.

Road building in Portugal is a slow process. Here workmen—who are paid about $2 a day—lay a stone base course, which will be filled in with a sandy clay material and covered with an asphalt treatment. Women help build the roads, too. A group of barefooted Portuguese women sweep off rough rock base in preparation for the asphalt covering. The low pay scale for labor enables Portugal to enjoy decorative concrete truss arches on a bridge on the Lisbon tollway. U. S. builders can't afford such complex structures.



solving each type of mathematical problem, along with many different phases of computer programming," Hudson continued.

"We saw the different approaches others take to solve the same problems on computers, and we compared the resulting economic factors such as programming time and machine time.

"Some of the factors we studied, such as techniques of convergence, may be helpful in some work presently being done at T.T.I. on the solution of stresses in layered systems," he added.

Other economical aspects on the use of computers also were brought out.

"There's always the problem of whether to use a big computer or a small computer," Hudson said. "The smaller one will cost less to operate, but it will turn out a smaller volume of work."

Hudson said that the association with 30 engineers from 13 countries provided for an invaluable, broad exchange of information.

"It was enlightening to discus common problems, to hear different attitudes, and to see various approaches to computer problems and technical engineering problems involving highways, structures and other aspects of civil engineering," he said.

"And it was especially interesting to note the complex problems that some Europeans are attempting to solve on computers. One of the most interesting was the optimization of a new subway system for the city of Liege in Belgium."

He explained that such operational research problems as this are related closely to the same type of problem for highway location, size, and other factors.

Hudson compared Portugal's highway system to the Texas Highway Department's system.

"Portugal has a fairly good primary highway system which is roughly equivalent to our secondary system," he began.

"But the system does an adequate job of serving Portugal. Although rural auto traffic is low—perhaps 1,000 a day—there is a complete and continuous bus service among the cities.

Texas, U.S.A., or Portugal? This modern road could be part of the Texas highway system, but actually it is a Portuguese tollway running north from Lisbon for 24 miles to Villa Franca.

"The buses serve as the main national transportation system because the average citizen does not own a car," Hudson pointed out. "Along with the buses and high-speed cars, you see a lot of ox carts traveling the highways."

Hudson said many of the highways are constructed from hand-hewn rock, similar to our old brick pavements. It is a slow process, laying the big rocks, filling in with sandy clay material, and then topping it with an asphalt surface.

"Incidentally," he noted, "the laborers average about $2 a day in wages. Most of the workers are men, but women sweep and level-up the roads."

Hudson then described some of Portugal's progressive features.

"Portugal is rapidly improving its highway system," he said. "The LNEC is doing some excellent research, primarily in the field of dams and structures, but also involving highways and prestressed roads. Several of their publications are related to our work, and I brought back copies of them for use in the D-8 research library."

The LNEC laboratory employs about 700 persons and has an annual budget of about 1.2 million dollars.

On his return trip to the United States, Hudson stopped for a short visit to the Road Research Laboratories near London. He lunched with several laboratory officials, and they discussed the research of the two countries.

And last but not least, Hudson told about his sight-seeing adventures.

"During the free weekends we managed to travel over about half of Portugal," he said.

"On one trip we went to the southern coast, which is considered to be the Riviera of Portugal. There we saw the cork trees and olive orchards.

"Another time we took a train trip to Porto—the center of the Port wine industry. True Port wine is grown in just one county of Portugal."

Here Hudson paused to muse.

"And you know, down there they drink wine at meals just like we drink water."

MULTI-PLATE PIPE

Edward S. Balser, et al
District 14

We have been interested in the ring compression theory of pipe installation ever since we saw demonstrations several years ago at the Highway Short Course. Articles in some of the trade magazines also increased our interest along these lines, but we didn't have sites suitable for installations of this kind. Just recently a farm to market road was authorized between State Highway 304, southeast of Bastrop, to State Highway 95 in Smithville which offered us the opportunity to try the ring compression theory of multi-plate pipe construction.

The new road, F. M. 2571, roughly parallels the Colorado River and the MKT Railroad with about one half of the project lying between the river and the railroad. Due to Colorado River floods and backwater, the grade of the railroad is some ten to 40 feet above the grade of the farm road with high timber trestles supporting the railroad over deep, sandy loam ravines.

The ravines are short with rather steep flow line grades. Due to the narrow ravines and the type of backfill material available, this project seemed ideally suited to the use of large diameter pipe structures. Accordingly, five of the six large structures were designed to use 15-foot diameter metal pipe, the largest ever used in this District. At the same time pan-girder structures were designed for the same locations in order to secure a comparison of costs for the two types of treatment. When bids were received, we found the pipe structures, together with the necessary additional fill, riprap, etc., were more economical than the pan-girder structures by some $6,600 per structure.

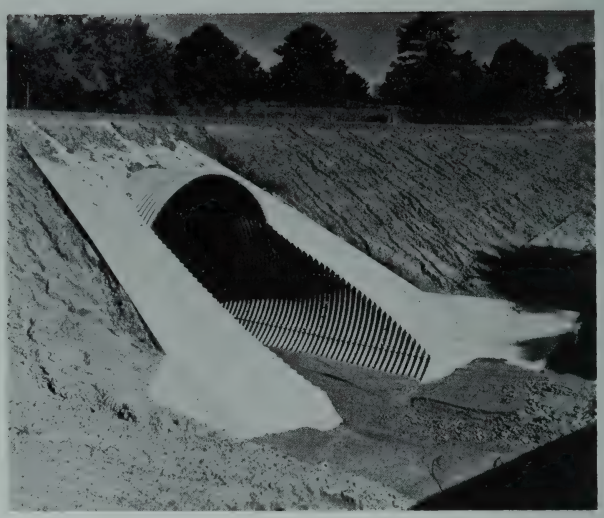
The five 15-foot pipes were designed to pass a 10-year flood with reasonable velocities but can pass a 50-year flood in an emergency. The

five structures for Q_{10} have velocities varying from 13.1 fps to 14.3 fps and with Q's varying from 951 cfs to 1,585 cfs. Since the velocities are well above erosive velocities, Shelton Rossberg, Engineering Assistant II, Bridge Division, designed energy dissipators for each of the structures varying in length from 30 feet to 45 feet.

A contract was awarded to the Cecil Ruby Company in April and the plates were delivered to the job site late in June. An inexperienced erection crew began to assemble the plates on July 6. Assembly on the first metal pipe required six days. As the crew gained experience, the remaining structures were assembled in about four days each. After being properly strutted to prevent deformation, backfilling with fine sandy loam using machine and hand-operated

This is how partially assembled metal pipe drainage structure looked earlier this summer in Bastrop County as construction started on the largest metal pipe ever assembled in District 14.

On the downstream side long concrete energy dissipators slow down rushing water coming through the pipe.



The completed structure showing the upstream end with concrete riprap. Sod has yet to be placed.

tamping equipment was started. At no time was heavy equipment permitted within two feet of the structures until at least two feet of fill covered the structure.

Assembly and backfilling of the five pipes required 29 days. This did not include riprap. Construction of the one pan-girder bridge required 90 days to complete. One of the pipe structures was built under an existing bridge, partially backfilled to handle traffic, and then the old bridge removed without interrupting traffic. Construction of the pan-girder bridge required that traffic be detoured over another county road and that a temporary crossing of the railroad be built for 90 days.

These projects were watched carefully by men from Secondary Roads Division, Bridge Division, various Districts of the Department, and representatives of several metal pipe manufacturers and the Metal Pipe Association. Excellent photographs were taken by W. F. Gustafson of D-14 on his visits to the project.

We intend to watch these structures carefully for their efficiency, maintenance costs, and operation of the energy dissipators. We believe metal pipes of larger diameter have a place in our operations where economy, speed of erection, and traffic considerations are of considerable importance and where the terrain will permit their use.

The following table shows the principle design features and quantities for the metal pipes:

Creek Station	Size	Plate Gauge	Q_{in} cfs	V fps	Energy Dissipator Length	Structural Excavation cu. yds.	Rip-rap
Little Piney 112+65	180"x 80'	12-8**	1585	14.3	40'	34	120
Reed's 205+50	180"x108'	10-7**	1235	13.7	45'	38	130
Mill 261+52	180"x 86'	12-8**	951	13.1	30'	35	98
Lime 320+44	180"x 82'	12-8**	1078	13.2	*	34	76
O'Possum 345+30	180"x104'	10-7**	998	13.4	30'	36	87

*Dissipator longer than required, due to curve in ravine, to prevent bank erosion.

**Heavier gauge in invert.

THE REAL STUFF

Arlington Citizen, under a photograph—"Motorists driving along North Collins Friday were startled to see what appeared to be a section of road with a heavy coating of snow. Of course that's not possible in 85 degree weather. A closer inspection proved that the powdery stuff was a layer of lime which the construction crew was working into the base of the road. After a little sprinkling and grading the snow disappeared, just as the 'real stuff' would do."

A SAGGING SLAB

Big Spring Herald, describing discovery of an old underground cistern beneath a new highway—"IH 20 almost had cavity trouble early today.

"A place on the east bound slab, near the point where the Salem Road intersects the highway at Sand Springs, began to settle below the common surface of the road . . . right at that spot there had once been . . . an old underground cistern.

"The [highway] department moved in men and tools, broke through the sagging slab, found the cavity and, with a huge auger, removed all loose earth. Trucks hauled in more stable material and refilled the hole. The department then repaved the area."

NEW LOW

Austin Statesman, announcing that—"Traffic crashes and deaths on Texas highway construction projects in 1961 hit their lowest levels in five years as the result of a cooperative project undertaken in 1958 by the Texas Highway Construction traffic safety committee."

BRIDGING THE BRAZOS

Waco Times-Herald, datelined Marlin—"Traffic was moving across the Brazos River between Marlin and Chilton on a new $1 million bridge today.

"The bridge was opened Monday and workmen started tearing down the old steel span which has carried traffic across the river for more than 50 years."

BIG RED (YELLOW AND GREEN)

Waco Citizen, telling Wacoites that "The Texas Highway Department will begin operation of the traffic signal at the intersection of U. S. 84 and S. H. 317 in McGregor on Friday, October 5, 1962. The new red, yellow and green signals will be supported over the intersection on a span wire and will replace the existing flashing beacon."

HOW FIRM A FOUNDATION?

Amarillo Daily News, informatively—"The Texas Highway Department has started taking samples of earth within the city at sites along Interstate 40 where overpasses are to be built . . . the earth samples will be used to determine the type of foundation to be used for each overpass."

THE BIG SHIFT

Seminole Sentinel, revealing—"The Texas Highway Department is expected to shift idle construction funds from other counties of West Texas to Gaines County and to advertise for bids late this winter or in early spring for a $1,000,000 four-laning of U. S. Highway 385 from Seagraves to the Andrews County line."

NEXT . . .

Pleasanton Express, giving editorial approval to settlement of an ordinance between the city and the Texas Highway Department—"The problem was this: A previous council had agreed to pass such a parking ordinance [outlining restrictive regulations on Highway 281 and FM 476] when Highway 281 was rebuilt through here in 1960. The ordinance was never passed. . .

"The matter came to a head when the State Highway department just as pointedly ignored a city request that the Poteet-Pleasanton road project be extended to include Bryant street . . . [because] the state could enter into no new agreements with Pleasanton when the city had failed to fulfill a previous commitment . . .

"The city has now met the obligation . . .

"Naturally we would like to see the state go ahead and okay the Bryant Street project. This, we feel, is not so important as the re-establishment of a good working relationship between the city and state highway department."

MAKING IT EASIER

El Paso Herald Post, predicting—"Heavy traffic at North Loop drive and Alameda avenue will be eliminated if plans of City engineers are approved by the State Highway Department.

"Construction of an overpass at Delta, further east, to connect with North Loop drive, would lessen traffic and make it easier for motorists to get downtown, Mayor Ralph Seitsinger said.

"That portion of North Loop drive between Alameda and the point where the new overpass would connect would be closed under the proposal."

THE FEMININE TOUCH

Angelina County Free Press (Diboll), under an arresting picture—"Texas Highway Department has contracted with R. D. Basham to sow new lanes on Highway 59 with Bermuda grass. Women shown here . . . sow the grass. Plowman is Leonard Murry. All are from Lufkin. The women, plus Murry and another plowman, will sow grass (some of it is transplanted) beside the new lanes from the Neches River slough bridge below Diboll, north to Lufkin."

AN ITEM

Huntsville Item, with—"Until recently, only a handful of people considered State Highway 19 an important segment of the Texas highway system. Many were of the opinion that it didn't mean much to the development of the section of the state served by this road.

"However, thanks to a group of civic-minded people who formed the State Highway 19 Association, they have shown us that the development of this artery will be an extremely important link between Houston and Tulsa, Oklahoma, through our own city of Huntsville."

BIG BUSINESS

Fort Worth Press, in a column by Walter Humphrey—"One of the big businesses in Tarrant County these days is highway and street construction . . . it adds up to a lot of work and substantial employment for our people here.

"And this is important: State Highway Engineer Dewitt Greer has publicly stated that Fort Worth and Tarrant county have the best freeway system in Texas at this stage.

"This reflects a great deal of vision back there when the freeway program started . . .

"Every person who drives a car is enthusiastic about divided highways, about going places with no traffic coming at him head-on.

"So, we appreciate our good streets and good highways, and maybe . . . and this is barely possible . . . we don't mind paying for them."

NOSTALGIA

Denton Record-Chronicle, about The Old Days—"A certain amount of nostalgia creeps into this weekend. Nostalgia for the days when old U. S. Highway 77 circled through the heart of Denton and it was impossible to get anywhere for Sooners blaring through on their way to victory or defeat at the hands of Texas in the Cotton Bowl.

"Now with the completion of the Expressway, fewer people lose their lives, the traffic isn't quite as thick in the city . . . We wouldn't wish back that old highway for the world, but we can remember how it used to be . . ."

RECOVERY FROM CARLA

Houston Post, from Port Arthur—"Repairs to a 31-mile beach route section of State Highway 87 which was washed out by Hurricane Carla last year have been completed and the highway is opened to traffic . . . District Highway Engineer W. E. Simmons [said] . . ."

CLOSER AND CLOSER

Waller County Record, with good news—"The deadly stretch of Death Road, U. S. Highway 290, between Hockley and Hempstead, moved another step closer to becoming a four lane facility.

"A release from the Highway Department advised that . . . construction will take approximately 175 working days for the 15.5 miles of road."

SIMPATICO

San Antonio Light, pointing out—"Mayor McAllister Saturday had turned a sympathetic ear toward a proposal which a local college president says would save the city more than $2,000,000 in freeway construction costs.

"The proposal came from Dr. S. Thomas Greenburg, Incarnate Word College—which lies in the path of the controversial north freeway—and would provide for a 150-yard tunnel under part of the college campus rather than a roadway through it."

A STEP FORWARD

Dallas Times Herald, editorially—"Approval by the Texas Highway Department of funds for Dallas County's expressway program is a step forward in the effort to build a good, efficient expressway system in keeping with the needs of the area.

"Dallas, like many other cities, has grown so fast in recent years that it has outgrown many of its traffic arteries before they could be constructed."

ONE OF THE BEST

San Marcos Record, with laudatory remarks on its editorial page—"The Highway Department Tuesday approved the application of the City of San Marcos and the recommendation of the Expressway Engineer for illumination of the 3.6 miles of Expressway which extends from the north to the south city limits. The project will cost $165,000.

"The expressway system in San Marcos will be one of the best heretofore devised and its engineering will be of real benefit to our city and to business establishments which line the super highway. . ."

GOOD NEWS

Abilene Reporter-News, recognizing the Highway Department and its roads—"Ten million dollars has been earmarked by the State Highway Department to complete Interstate 20 construction in the Abilene district.

"The expenditure is authorized for the 1963-64 Highway Department year.

"This is not unexpected, but it is nonetheless significant and heartening news.

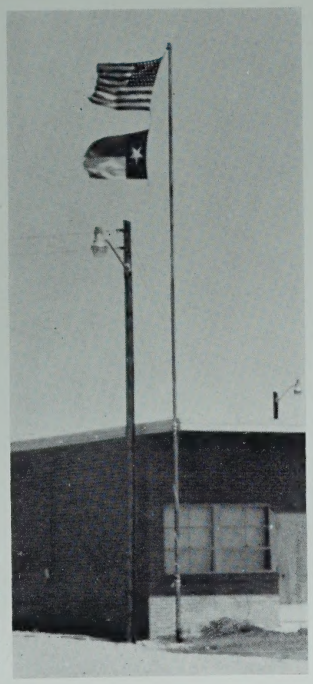
"West Texas leaders recognize the value of good highways and appreciate the progress that the State Highway Department has made in this area.

"Highways are an increasingly important factor in transportation, communication and growth. The state of Texas is blessed with a good department and a good system, and West Texas is not being overlooked."

OF SIGNS AND THINGS

Competing with Texas scenery for the attention of passing motorists throughout the state are unusual signs and oddities. All but one of the pictures on these pages—that of the irrigation equipment—were taken by Ben Lednicky of Maintenance Operations Division, Austin office. Landscape Architect Lednicky covers his five districts in Northwest Texas with his trusty camera always at hand because he has developed "a weakness for taking pictures of odd-ball signs" and other items drawing double takes from travelers.

Joel D. Willson, Senior Maintenance Superintendent, District 5, submitted the irrigation equipment photo.



Looks like Yankee mischief here—the flag of Texas UPSIDE DOWN?

There are several possible interpretations for this sign. We think someone wants to go sailing.

Bending with the breeze? The tilt of this highway sign more likely was caused by contact with a car or prankster. It hardly has a leg left to stand on.

Here's the way they plow in Swisher County—sans driver.

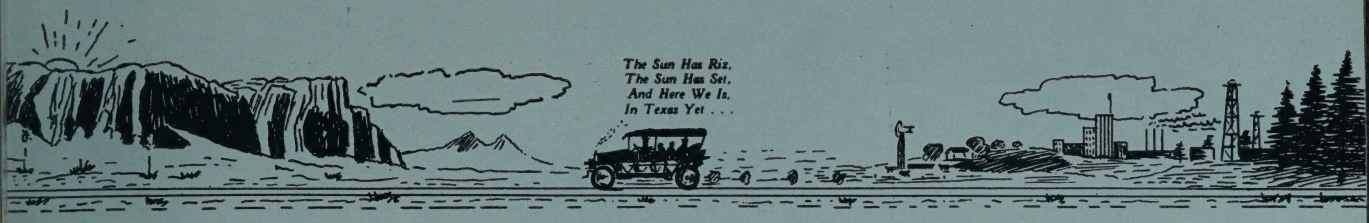
This ought to please phonetic enthusiasts.

What's in a name? Greeting drivers along US 87 north of Lubbock is this eye-catcher.

Honesty is the best policy.

The proprietor of Wayne's Cafe—a determined and optimistic man.

Santa really was stuck on his job. This was taken by Lednicky east of Goldthwaite on US 84 back in 1949.



OVER THE HIGHWAYS

Comments . . . from the Traveling Public

• Using the Hunt Ingram highway No. 27 daily, and passing over it while under construction, I noticed one engineer always on hand in case of difficulties arising from construction work. The road is always kept free for passage.

It is seldom that we find such an ambitious man in our times. Therefore I feel the desire to bring this outstanding worker to your attention.

Harry Drucker,
Hunt, Texas

• I have just returned from an automobile trip of some 3,000 miles, in the course of which I covered Texas from north to south, especially the eastern half. Most of your highways are quite superior as compared to other states in the South and the Midwest, and are a joy to drive along.

The extra wide, surfaced shoulders on most of the Texas highways which I traveled are the best highway safety factor I have encountered, as it minimizes the danger in passing or in being passed!

My appreciation to the highway department . . . and my thanks to the many friendly Texans who impressed me so favorably.

Mrs. Martha E. Church
New Orleans, Louisiana

(The following letter was written to State Highway Engineer D. C. Greer.)

• Our people are extremely pleased with the recognition that came to Texas in having two highways named among the 20 most scenic routes in the United States. We were particularly happy that the beauty of that section of Interstate Highway 45 in Walker County was chosen for entry. To us, it represents the ultimate in good highway designing and construction through an area that is truly representative of a large segment of our great state.

We are most pleased, too, that this high compliment has come to you and your department because we feel no segment of our state government renders a greater service in the most economical and efficient manner.

Congratulations to you and to all of those who served with you in your excellent road program.

Maurice E. Turner
Executive Vice President
Huntsville & Walker County
Chamber of Commerce

• This past week my family and I had the occasion to visit and travel seven days through your state. We made frequent use of your roadside parks at meal times much to the enjoyment of our two small children. At each stop during our visit in Texas we found these parks very easily because of the approach signs. The area itself was always found to be maintained in good repair, in a clean condition, and sufficiently located from the highway to enable the children to have some freedom without our worrying about their safety . . .

Frank G. Perryman
Sylacauga, Alabama

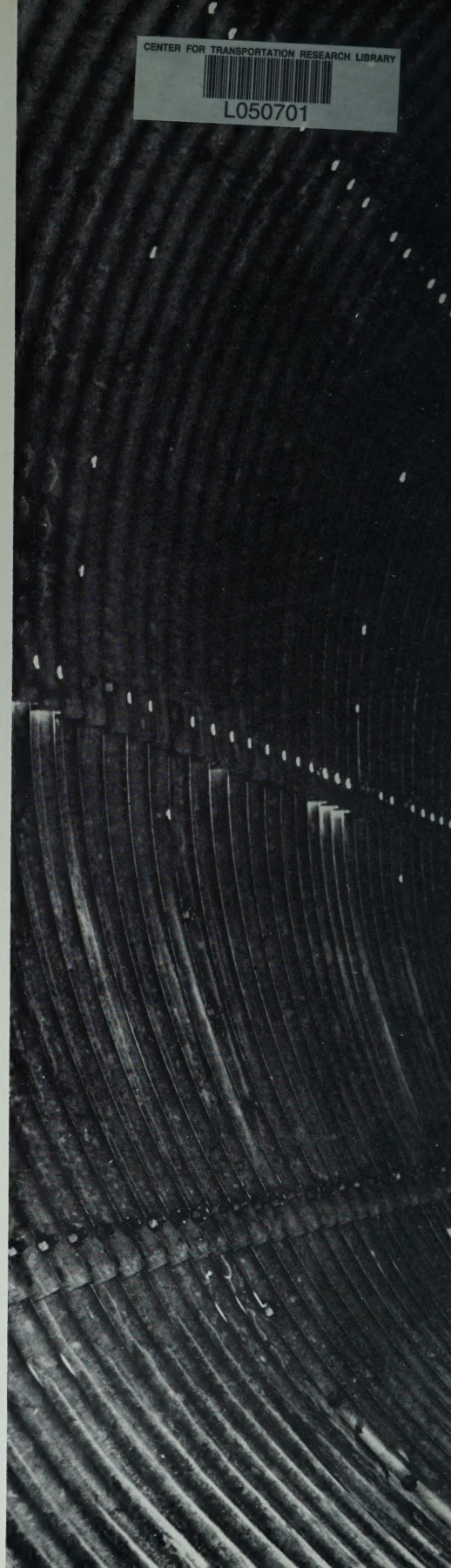
• On a recent vacation trip, I stopped at the Texas Highway Department Information Bureau at Wichita Falls. I was greatly impressed with the attractiveness of this building and even more by the gentleman and young lady in charge. They were most helpful to me and I am sure that their helpfulness is even greater to out-of-state visitors.

Walter B. Moore
Editor, Texas Almanac
The Dallas Morning News

• You deserve a note of thanks for your splendid job done building and marking roads in East Texas . . .

. . . although I was a total stranger to the area, I had no problem whatsoever finding my various destinations. In addition to being well marked, your highways are very easy on the driver as well as the automobile . . . It is a pleasure to be a traveling salesman in Texas.

Bill Fly
Branch Manager
Dictaphone Corporation


CENTER FOR TRANSPORTATION RESEARCH LIBRARY
L050701